UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,661	01/03/2007	Christophe Guilhot	287229US0X PCT	1230

22850 7590 04/28/2008

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER
MEAH, MOHAMMAD Y

ART UNIT	PAPER NUMBER
1652	

NOTIFICATION DATE	DELIVERY MODE
04/28/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/570,661	GUILHOT ET AL.	
	Examiner	Art Unit	
	MD. YOUNUS MEAH	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *1-9 and 12-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/2/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-20 are pending. In response to the election/restriction-office action of date 12/17/2007 of this application, the applicant, on date 01/17/2008 elected with traverse Group IV (claims 10-11) for examination.

Election/Restriction

During preliminary amendment of this application, the applicant, on date 01/17/2008 elected with traverse Group IV (claims 10-11) drawn to method of screening antibiotic for bacterium producing mycolic acid for examination. Groups I-III (claims 1-9 and 11-20) of election/restriction-office action of date12/17/2007 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected Groups.

The traversal is on the ground(s) that no reasoning is given for restriction and product and use of product should be examined together and there is no special burden for examiner to examine all groups of invention. It is not found to be true because this is a 371 case and as explained before during election/restriction-office action of date 12/17/2007 of this application, claims are not linked by a special technical feature. Further evidence that the claims lack special technical feature is found in rejection heading under U.S.C.102 section below. Applicants further argue that there would be no undue burden on the examiner to examine claims directed to methods of using the products and various products. This is not persuasive because while the search for each of these distinct groups: protein, vector, host cells etc, and methods of using these diverse

products in different methods steps would be overlapping, it would not be coextensive. Art that applies for protein and/or host cell may or may not be relevant to the others. Therefore the restriction is maintained.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Acknowledgement is made of applicant's PCT priority date based on application filing date of 09/6/2004 # PCT/FR04/02257 and foreign application filing date 09/04/03 France 0310470.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 6/2/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the IDS statements.

Claim Rejections

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10-11 are rejected under U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor at the time the application was filed, had possession of the claimed invention.

Claim 10– recitation of "transformed bacterium"- makes the claim indefinite as it is unclear with what and how the said bacterium is "transformed"?

35 U.S.C 112 1st Paragraph

Written Description

The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10-11 are rejected under U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor at the time the application was filed, had possession of the claimed invention.

Claims 10-11 are directed to methods of screening an antibiotic against a bacterium that synthesize mycolic acid comprising using any transformed bacterium transformed with any means with any thing (such as mutating on or more genes, overexpressing , etc) wherein said transformed bacterium survives without producing mycolic acid from any source. The specification neither teaches nor produce a genus of bacterium that transformed by any means with any thing that survive without producing mycolic acid. Given this lack of description of representative species encompassed by the genus of the claim, the specification fails to sufficiently describe the claimed invention in

such full, clear, concise, and exact terms that a skilled artisan would recognize that applicants were in possession of the claimed invention.

In *University of California v. Eli Lilly & Co.*, 43 USPQ2d 1938, the Court of Appeals for the Federal Circuit has held that "A written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials". As indicated in MPEP § 2163, the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show that Applicant was in possession of the claimed genus. In addition, MPEP § 2163 states that a representative number of species means that the species, which are adequately described, are representative of the entire genus. Thus, when there is substantial variation within the genus, one must describe a sufficient variety of species to reflect the variation within the genus.

Claims 10-11 are directed to methods of screening an antibiotic against any bacterium that synthesize mycolic acid comprising using any transformed bacterium transformed with any means with any thing that survive without producing mycolic acid. The specification lacks description how any transformed bacteria can be used to

screening antibiotic, especially no identifying characteristics or properties (bacteria or transforming agent) or structure (transforming agent, a gene) correlated with function recited in these claims. Therefore one of skill in the art would not recognize from the disclosure that applicants' were in possession of the claimed invention.

Applicants' are referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Enablement

Claims 10, 11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods of screening antibiotic comprising using bacterium transformed with mutation of gene encoding Pks13 protein of SEQ ID NO:1, does not reasonably provide enablement for methods of screening antibiotic using any bacterium transformed with any means with any thing (overexpressing or mutating any gene) wherein said transformed bacterium survive without producing mycolic acid. The claims broadly recite methods of screening antibiotic using any transformed bacterium. The specification fails to describe how any bacterial strain expressing or not expressing any type of gene can be used to screen antibiotic against a mycolic acid producing bacterium.

Factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* (858 F.2d 731, 8 USPQ 2nd 1400 (Fed.

Cir. 1988)) as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breath of the claim(s).

Claims 10-11 are so broad as to include methods of screening antibiotic using any bacterium transformed with any means with any thing (overexpressing or mutating any gene) wherein said bacterium survives without producing mycolic acid. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number methods of screening antibiotic using any bacterium transformed with any means with any thing (overexpressing or mutating any gene) wherein said bacterium survives without producing mycolic acid broadly encompassed by the claims. Since the amino acid sequence of a protein determines its structural and functional properties, predictability of which changes can be tolerated in a protein's amino acid sequence and obtain the desired activity requires a knowledge of and guidance with regard to which amino acids in the protein's sequence, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the proteins' structure relates to its function (Pal et al. Structure 2004, 13, pp 121-130). However, in this case the disclosure is limited to the nucleotide and encoded amino acid sequence of few Pks13 genes of M. tuberculosis. While recombinant and mutagenesis techniques are known, it is not routine in the art to screen for multiple substitutions or multiple modifications, as encompassed

by the instant claims, and the positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple substitutions.

The specification does not support the broad scope of the claims which encompass method of screening antibiotic using any bacterium transformed with any means with any thing (overexpressing or mutating any gene) wherein said bacterium survive without producing mycolic acid broadly encompassed by the claims because the specification does **not** establish: (A) regions of the gene structure which may be modified without effecting Pks13 activity and expression of any bacterial strain with such gene; (B) the general tolerance of Pks13 gene as well as bacterial strain to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any Pks13 residues or any gene with an expectation of obtaining the desired biological function; and (D) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including any method of screening antibiotic using any bacterium transformed with any means with any thing (overexpressing or any mutating any gene) wherein said bacterium survive without producing mycolic acid

broadly encompassed by the claims. The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of Pks13 genes, having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

CLAIM Rejection - 35 U.S.C 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 10-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Trucksis et al. (US 20030236393). Trucksis et al. teach transformed bacteria having mutated polyketide synthase (Pks) gene and use the said transformed bacteria to screen antibiotic for mycobacteria.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Meah whose telephone number is 571-272-1261. The examiner can normally be reached on 8:30-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mohammad Meah/
Acting Examiner of Art Unit 1652/1600

Mohammad Younus Meah, PhD
Examiner, Art Unit 1652
Recombinant Enzymes, 3C31 Remsen Bld
400 Dulany Street, Alexandria, VA 22314
Telephone: 517-272-1261